

REMARKS

Upon entry of the instant amendment, claims 1, 4, 6-8, 10-11, 13-28 will remain pending in the present application. In the instant amendment, claims 1, 4, 6-8, 10-11, 17 and 19 have been amended. Also, new claims 26-28 have been added.

The instant amendment made herein to the claims does not incorporate new matter into the application as originally filed. For example, new claim 26 is based on the paragraph [0020] at page 12 of the substitute specification filed on September 8, 2006 (hereinafter, simply referred to as the specification). New claim 27 is based on Figs. 1, 6, 9, 11 and 14. New claim 28 is based on the paragraph [0002] at page 1 and the disclosure at page 50, line 3 of the substitute specification.

Further, the instant amendment does not raise substantial new issues for the Examiner's consideration nor require further search on the Examiner's part. At the same time, the instant amendments put the pending claims in condition for allowance and into a more proper format for issuance in a United States patent, by overcoming all outstanding rejections of record.

Accordingly, proper consideration of each of the pending claims is respectfully requested at present, as is entry of the present amendment.

Information Disclosure Statements (IDS)

Applicants appreciate the Examiner returning the initialed PTO-1449 form submitted by Applicants on January 11, 2008.

However, Applicants note that another IDS was filed on January 31, 2007 and the PTO-1449 form thereof was not returned with the Office Action. Further, we filed the new IDS on September 9, 2008.

Thus, the Examiner is respectfully requested to return initialed copies of the PTO-1449 to the undersigned.

Claim Rejections under 35 U.S.C. § 103

At pages 3-15 of the Office Action (*see paragraphs "4." to "9."*), the Examiner sets forth the following rejections:

4. A rejection of claims 1, 4, 6, 11, 13, 15, 16, 20 and 21-23 under 35 U.S.C. § 103(a) over Shamouilian U.S. '814 (U.S. Patent No. 5,646,814) in view of Benjamin U.S. '076 (U.S. Patent No. 6,563,076);
5. A rejection of claims 7-8 under 35 U.S.C. § 103(a) over Shamouilian U.S. '814 in view of Benjamin U.S. '076 and Sill U.S. '112 (U.S. Patent No. 6,431,112);
6. A rejection of claims 17 and 19 under 35 U.S.C. § 103(a) over Shamouilian U.S. '814 in view of Benjamin U.S. '076 and Ito U.S. '521 (U.S. Publication No. 2003/0015521);
7. A rejection of claims 17 and 18 under 35 U.S.C. § 103(a) over Shamouilian U.S. '814 in view of Benjamin U.S. '076 and Shufflebotham WO '945 (WO 97/23945);
8. A rejection of claim 10 under 35 U.S.C. § 103(a) over Shamouilian U.S. '814 in view of Benjamin U.S. '076 and Yasushi JP '594 (JP 2004-031594);
9. A rejection of claims 14 and 24 under 35 U.S.C. § 103(a) over Shamouilian U.S. '814 in view of Benjamin U.S. '076 and Kitabayashi U.S. '627 (U.S. Patent No. 6,768,627);

Applicants respectfully traverse. Reconsideration and withdrawal of the rejections is requested based upon the following considerations.

Legal Standard for Determining Prima Facie Obviousness

M.P.E.P. § 2143 sets forth the guidelines in determining obviousness. First, the Examiner has to take into account the factual inquiries set forth in *Graham v. John Deere*, 383 U.S. 1, 17, 148 USPQ 459, 467 (1966), which has provided the controlling framework for an obviousness analysis. The four *Graham* factors of: determining the scope and content of the prior art; ascertaining the differences between the prior art and the claims that are at issue; resolving the level of ordinary skill in the pertinent art; and evaluating any evidence of secondary considerations (e.g., commercial success; unexpected results). 383 U.S. 1, 17, 148 USPQ 459, 467 (1966). Second, the Examiner has to provide some rationale for determining obviousness, wherein M.P.E.P. § 2143 set forth some rationales that were set established in the recent decision of *KSR International Co. v Teleflex Inc.*, 82 USPQ2d 1385 (U.S. 2007). Here, the Examiner has not appropriately resolved the *Graham* factors, including ascertaining the differences between the prior art and the claims that are at issue, and the rationale in combining the cited references is improper.

Combining known prior art elements is not sufficient to render the claimed invention obvious if the results would not have been predictable to one of ordinary skill in the art. *United States v. Adams*, 383 U.S. 39, 51-52, 148 USPQ 479, 483-84 (1966); *see also* M.P.E.P. § 2143.

The rationale should be made explicit, *KSR International Co. v Teleflex Inc.*, 82 USPQ2d 1385 (U.S. 2007), and the Examiner must interpret the reference as a whole and cannot pick and choose only those selective portions of the reference which support the Examiner's position. *In re Fine*, 837 F.2d 1071, 1075 (Fed. Cir. 1988) ("One cannot use hindsight reconstruction to pick and choose among isolated disclosures in the prior art to depreciate the claimed invention.").

Distinctions over the Cited References

Shamouilian U.S. '814 fails to disclose or suggest that a first electrode and a second electrode, which are disposed on a top surface and a bottom surface of an inter-electrode insulating layer, are moved in cooperation with each other via the inter-electrode insulating layer so as to attract the substrate to an electrostatic chuck, which configuration is one of features of the present invention as recited in the claims. Therefore, even when it is combined with an invention described in Benjamin U.S. '076, the present invention cannot be achieved for following reasons.

First, as disclosed at the description in lines 29 to 63 of the first column of Shamouilian U.S. '814, the invention of Shamouilian U.S. '814 relates to a technology which involves electrically attracting and fixing the electrostatic chuck 20 to the support 44 by using the first electrode 22 provided to the electrostatic chuck 20, whereas in the conventional method, the electrostatic chuck 20 is fixed to the support 44 by a method such as fixing through screws, clamping, or bonding layer. In other words, a first voltage is applied to the first electrode 22 to fix the electrostatic chuck 20 on the support 44, and a second voltage is applied to the other second electrode 24 provided to the electrostatic chuck 20 to attract the substrate 42 to the electrostatic chuck 20. In this manner, the electrostatic chuck 20 is electrically attracted and fixed to the support 44, whereby it is possible to produce effects "for quick installation and removal of the chuck, good heat transfer between the chuck and support, and which minimizes formation of corrosive contaminants which can deposit on the substrate." (See lines 58 to 63 of the first column.) In such a case, the substrate 42 as mentioned in Shamouilian U.S. '814 is a

semiconductor wafer (see line 5 of the first column and lines 4 and 5 of the third column). Further, as disclosed at lines 6 to 20 of the fourth column, in particular, from the description *"The charged species impinging on the substrate 42 work in conjunction with the electrical voltage ...that holds the substrate 42 to the chuck 20"*, the electrostatic chuck 20 described in Shamouilian U.S. '814 is one that attracts and holds the substrate 42 by an electrostatic force generated by electric charges between the second electrode 24 and the substrate 42. In other words, Shamouilian U.S. '814 fails to disclose or suggest that the first electrode 22 and the second electrode 24 are used together so as to attract the substrate 42 to the electrostatic chuck 20.

On the other hand, Benjamin U.S. '076 discloses that an electrostatic chuck attracts and holds a workpiece 14 (212) by the electrostatic force by applying a DC voltage to an electrode 38(214) so as to generate positive and negative charges between the electrode 38(214) and the electrically conductive workpiece 14(212) (see line 47 of the second column to line 2 of the third column, and lines 53 to 62 of the fifth column). Further, as shown in Figs. 1B and 1C, and Fig. 2A, the electrode 38(214) is formed of a first electrically conductive portion 42(216a) and a second electrically conductive portion 44 (216b). In other words, in Benjamin U.S. '076, there is no description of the electrostatic chuck provided with the first electrode and the second electrode via the inter-electrode insulating layer, which are disposed on the inter-electrode insulating layer in a vertical direction thereof as recited in the claims.

As a result, even if Benjamin U.S. '076 discloses that the voltage may be applied to generate a potential difference between the first electrically conductive portion 42(216a) and the second electrically conductive portion 44(216b), Shamouilian U.S. '814 fails to disclose or

suggest that the first electrode 22 and the second electrode 24 are moved in cooperation with each other to attract the substrate 42 as described above. Therefore, the present invention cannot be achieved by a person having skills in the art based on the combination of Shamouilian U.S. '814 and Benjamin U.S. '076. In Shamouilian U.S. '814, there is a description that *"Either of the first and second electrodes 22, 24 can comprise a bipolar electrode structure comprising a pair of electrodes as shown in Fig. 2b"* in lines 31 to 33 of the fifth column. Even when Shamouilian U.S. '814 is combined with Benjamin U.S. '076, a result to be obtained is, at best, that a voltage is applied between "bipolar electrodes 22a and 22b" as shown in Fig. 2b.

In addition, the electrostatic chuck of the present invention can attract both a semiconductor wafer such as a silicon wafer and an insulating substrate such as glass. On the other hand, each of electrostatic chucks of Shamouilian U.S. '814 and Benjamin U.S. '076 cannot attract insulating substances such as a glass substrate as explained in the last response to the Office Action filed on March 7, 2008. Thus, one skilled in the art is not motivated to arrive at the present invention which is **capable** of attracting insulating substances (e.g., a glass substrate) based on the combination of Shamouilian U.S. '814 and Benjamin U.S. '076, electrostatic chucks of which are **incapable** of attracting insulating substances. Further, such an advantageous result is not expected from the cited references.

Further, because the inter-electrode insulating layer is interposed between the first electrode and the second electrode, dielectric breakdown between the first electrode and the second electrode can be effectively avoided. Such an advantageous property is also not disclosed and suggested in the cited references.

Similarly, the other secondary cited references (e.g., Sill U.S. '112, Ito U.S. '521, Shufflebotham WO '945, Yasushi JP '594 and Kitabayashi U.S. '627) also fail to disclose or suggest the features of the present invention as explained above.

As explained above, the present invention (independent claim 1 and its dependent claims) are not obvious over the combination of Shamouilian U.S. '814, Benjamin U.S. '076 and the other references since none of the cited references disclose or suggest the features of the present invention, a rationale for determining obviousness cannot be established based on the cited references, and further the present invention exhibits advantageous, unexpected results (e.g., attracting not only a semiconductor wafer such as a silicon wafer but also an insulating substrate such as glass). Accordingly, Applicants respectfully request that the Examiner withdraw the rejections.

New claims 26-28

Each of the invention in new claims 26-28 also has similar features to the bipolar electrostatic chuck as recited in claim 1 and further clarified features. Thus, for the reasons explained above, Applicants submit that these new claims are also patentable.

For example, in claims 26 and 27, a method of applying voltage is further clarified. In claim 28, it is recited that the bipolar electrostatic chuck is capable of attracting an insulating substrate.

CONCLUSION

Based upon the amendments and remarks presented herein, the Examiner is respectfully requested to issue a Notice of Allowance clearly indicating that each of the pending claims are allowed.

Should there be any outstanding matters that need to be resolved in the present application, the Examiner is respectfully requested to contact Toyohiko Konno (Reg. No. L0053) at the telephone number of the undersigned below, to conduct an interview in an effort to expedite prosecution in connection with the present application.

If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies to charge payment or credit any overpayment to Deposit Account No. 02-2448 for any additional fees required under 37.C.F.R. §§ 1.16 or 1.14; particularly, extension of time fees.

Dated:

Respectfully submitted,

By 

Gerald M. Murphy, Jr.

Registration No. 28,977

BIRCH, STEWART, KOLASCH & BIRCH, LLP

8110 Gatehouse Road

Suite 100 East

P.O. Box 747

Falls Church, Virginia 22040-0747

(703) 205-8000

Attorney for Applicant